

To the Editor of the Wilson Bulletin:

Now that fourteen of my Bulletins on the "Life Histories of North American Birds" have been published, your readers may be interested to know what progress is being made on future volumes.

The manuscript for the fifteenth, on the Corvidae and Paridae, has long since been completed and is in the hands of the publishers in Washington.

My work on the sixteenth, containing the birds on the 1931 Checklist from the nuthatches to the thrashers inclusive, is practically done, except for a few minor details.

I am now starting work on the seventeenth volume, which is planned to include the birds on the 1931 Check-list from the thrushes to the vireos inclusive.

It is planned to accumulate manuscript in advance of publication, which may be retarded under the present war conditions.

I wish to take this opportunity to thank all those who have contributed material for previous volumes, to remind them that this is a co-operative work, and to ask them to send me, as soon as possible, contributions of notes, data and photographs relating to birds to be included in the seventeenth volume; the sooner these are received, the easier it will be for me to use them.

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Taunton, Mass.

Sincerely yours,
A. C. BENT

FLIGHT AND RUNNING SPEEDS OF BIRDS

BY CLARENCE COTTAM, CECIL S. WILLIAMS AND CLARENCE A. SOOTER

ONE of the chief characteristics and most fascinating accomplishments of birds is their remarkable degree of mobility. This quality undoubtedly has had high survival value in their evolution. Obviously, there is great variation among individuals of a species or even within the same flock or covey. As might also be expected, there is a vast difference between the normal cruising and feeding speed and the maximum speed; each of these probably varies under a wide range of conditions. In addition to the will for speed at any particular moment, wind direction and velocity, angle of flight in relation to the earth, the age and physical condition of the bird, the state of its plumage, and other factors modify the speed of the bird.

The topics of flight speed, altitude attained, and the mechanics or aeronautics of flight have already been the subject of considerable conjecture and observation. Specific data on flight and running speeds may prove of value to the investigator of predator-prey relationships. The subject of flight speed is best summarized by May Thacher Cooke in U. S. Department of Agriculture Circular No. 428, entitled "Flight Speed of Birds", issued in May, 1937. Relatively few running speeds have been recorded.

In the course of field work in various parts of the West, we have been able to time a number of birds whose flight or running speeds have never been recorded and to add to the rather limited data on record for others. All records were made by automobile, from which two or more observers usually checked the speeds. Our data are summarized in Tables 1 and 2. The bird names used are those of the A.O.U. Checklist (1931).

TABLE 1
FLYING SPEED OF BIRDS

Species	Miles per hour	Place	Date	Distance covered	Observer	Remarks
Double-crested Cormorant	22	Malheur Refuge, Oregon	6/29/41	200 yds.	C. C. W. C. S. W. C. A. S.	Cruising
Great Blue Heron	18, 24, 25, 29	Bear River Bird Refuge, Utah	7/21-24/41	200 yds.	C. C. W.	Cruising
Great Blue Heron	36	Bear River Bird Refuge, Utah	7/26/41	200 yds.	C. C. W. C. S. W.	No favoring wind, bird pressed
Great Blue Heron	20	Malheur Refuge, Oregon	7/21/41		C. C. C. S. W. C. A. S.	Cruising
Black-crowned Night Heron	20	Malheur Refuge, Oregon	6/29/41	200 yds.	C. C. W. C. A. S.	Cruising
Black-crowned Night Heron	18	Malheur Refuge, Oregon	10/13/41	450 yds.	C. A. S.	No wind; 3 juveniles
Black-crowned Night Heron	35	Bear River Bird Refuge, Utah	7/23/41		C. C. W. C. S. W.	Paralleling car; being pressed some
Snowy Egret	30	Bear River Bird Refuge, Utah	7/23/41		C. C. C. S. W.	Bird pressed
White-faced Glossy Ibis	30, 33	Bear River Bird Refuge, Utah	7/21/41		C. C. C. S. W.	Cruising
Whistling Swan	25	Currituck Sound, North Carolina	Nov. 1933	450 yds.	C. C.	Six birds flying 18 to 25 miles per hour

Canada Goose	20	Currituck Sound, North Carolina	Nov. 1933	200 yds.	C. C.	Cruising, easy flight
Canada Goose	26	Bear River Bird Refuge, Utah	7/21/41	200 yds.	C. C. C. S. W.	In front of car
Mallard	40	Bear River Bird Refuge, Utah	7/21/41	200 yds.	C. C. C. S. W.	Bird being pressed
Gadwall	29	Malheur Refuge, Oregon	6/29/41	200 yds.	C. C. C. S. W. C. A. S.	Cruising
Baldpate	22	Malheur Refuge, Oregon	6/29/41	100 yds.	C. C. C. S. W. C. A. S.	Gliding to alight
Pintail	49	Bear River Bird Refuge, Utah	7/26/41	½ mile	C. C. C. S. W.	Juvenile, being pressed
Green-wing Teal	30, 40	Bear River Bird Refuge, Utah	9/14/41	½ mile	C. C. C. S. W.	Cruising and being pressed, respectively
Cinnamon Teal	50	Bear River Bird Refuge, Utah	7/23/41	½ mile	C. C. C. S. W.	Male; being pressed
Cinnamon Teal	33	Malheur Refuge, Oregon	6/29/41	200 yds.	C. C. C. S. W. C. A. S.	Cruising
Shoveller	25	Malheur Refuge, Oregon	6/29/41	200 yds.	C. C. C. S. W. C. A. S.	Not exerting itself
Shoveller	50	Bear River Bird Refuge, Utah	9/17/41	200 yds.	C. C. C. S. W.	Pressed
Redhead	45	Bear River Bird Refuge, Utah	9/14/41	200 yds.	C. C. C. S. W.	Pressed, but attempting to light; erratic flight
Redhead	50, 55	Bear River Bird Refuge, Utah	7/23/41	200 yds.	C. C. C. S. W.	Pressed

Species	Miles per hour	Place	Date	Distance covered	Observer	Remarks
Redhead	31	Bear River Bird Refuge, Utah	7/23/41		C. C. W.	Cruising
Redhead	50, 51	Bear River Bird Refuge, Utah	7/26-28/41		C. C. W.	Female; being pressed
Buffle-head	48	Bear River Bird Refuge, Utah	10/24/41	3 miles	C. S. W.	Three females
Buffle-head	40	Malheur Refuge, Oregon	12/12/41		C. A. S.	Slight cross wind hindering flight (Blitzen River)
Sharp-shinned Hawk	28	Malheur Refuge, Oregon	10/3/41	525 yds.	C. A. S.	No wind
Cooper's Hawk	28	Bear River Bird Refuge, Utah	9/14/41	100 yds.	C. C. W.	Female
Ferruginous Roughleg	30-35	Red Rock Refuge, Montana	9/16/41	450 yds.	C. C. W.	
Prairie Falcon	30	Malheur Refuge, Oregon	11/8/41	175 yds.	C. S. W.	No wind
Osprey	25-27	Parramore Island, Virginia	8/23/35	450 yds.	C. A. S.	Flying along beach
Duck Hawk	40	Bear River Bird Refuge, Utah	7/21/41		C. C.	Cruising
Sparrow Hawk	30-39	Warner Valley, Oregon	6/30/41	200 yds.+	C. C. W.	Cruising
Sharp-tailed Grouse	28, 30, 33	Des Lacs, North Dakota	7/28/41	50 yds.+	C. C.	
Sharp-tailed Grouse	22	Faith, South Dakota	8/18/41		R. G.	

Sage Grouse	28	Alturas, California	7/2/41	50 yds.	C. C. W. C. S. W.	Flushed, flying in front of car
Sandhill Crane	31	Malheur Refuge, Oregon	3/18/41	700 yds.	C. A. S.	Fair breeze hindering flight
Sandhill Crane	35	Malheur Refuge, Oregon	8/22/41		C. A. S.	No wind
Western Snowy Plover	30	Bear River Bird Refuge, Utah	7/21/41		C. C. W. C. S. W.	Apparently cruising speed
Killdeer	25	Malheur Refuge, Oregon	6/29/41	50 yds.	C. C. W. C. S. W. C. A. S.	Flying zigzag
Long-billed Curlew	50	Bear River Bird Refuge, Utah	6/26/41	450 yds.	C. C. W. C. S. W.	Flying in front of car
Long-billed Curlew	35, 40, 45	Malheur Refuge, Oregon	6/29/41	100 to 200 yds.	C. C. W. C. A. S.	No exertion in evidence
Spotted Sandpiper	23	Malheur Refuge, Oregon	6/29/41	50 yds.	C. C. W. C. S. W. C. A. S.	Apparently cruising
Spotted Sandpiper	21, 25, 30	Bear River Bird Refuge, Utah	7/21/41		C. C. C. S. W.	Apparently cruising
Western Willet	35, 39, 40	Bear River Bird Refuge, Utah	7/21/41	50 to 200 yds.	C. C. C. S. W.	
Western Willet	45, 47	Bear River Bird Refuge, Utah	7/23-24/41	200 yds.	C. C. W.	Small flocks of 3 and 12 birds
Forster's Tern	10	Bear River Bird Refuge, Utah	7/24/41	200 yds.	C. C. C. S. W.	Cruising
Common Tern	28	Parramore Island, Virginia	8/23/35		C. C.	Cruising along ocean beach

Species	Miles per hour	Place	Date	Distance covered	Observer	Remarks
Black Tern	21, 23	Malheur Refuge, Oregon	6/29/41	100 yds.	C. C. C. S. W. C. A. S.	Cruising
Black Tern	10	Bear River Bird Refuge	7/24/41	50 yds.	C. C. C. S. W.	Cruising
Black Skimmer	10	Parramore Island, Virginia	8/23/35	200 yds.	C. C.	Cruising
Black Skimmer	30	Parramore Island, Virginia	8/23/35	200 yds.	C. C.	Flock of 12
Great Horned Owl	40+	Malheur Refuge, Oregon	10/27/41		C. A. S.	Slight wind aiding flight
Burrowing Owl	12	Malheur Refuge, Oregon	6/29/41	40 yds.	C. C. C. S. W. C. A. S.	Cruising or feeding flight
Short-eared Owl	15, 19, 25	Malheur Refuge, Oregon	6/28-29/41	20 to 50 yds.	C. C. C. S. W. C. A. S.	No wind
Short-eared Owl	26	Malheur Refuge, Oregon	10/7/41		C. A. S.	No wind
Red-shafted Flicker	28	Malheur Refuge, Oregon	6/29/41	50 yds.	C. C. C. S. W. C. A. S.	Cruising; no wind
Red-shafted Flicker	27	Malheur Refuge, Oregon	11/20/41		C. A. S.	
Red-shafted Flicker	28	Malheur Refuge, Oregon	12/6/41		C. A. S.	

Red-shafted Flicker	29	Upper Souris, North Dakota	7/28/41	400 yds.	C. C.	Cruising
Violet-green Swallow	28	Malheur Refuge, Oregon	6/29/41	50 yds.	C. C. W. C. A. S.	Cruising in zigzag
Cliff Swallow	29	Malheur Refuge, Oregon	6/29/41	50 yds.	C. C. W. C. A. S.	Cruising in zigzag; 2 separate records
American Magpie	20	Malheur Refuge, Oregon	10/9/41		C. A. S.	Favored by wind
American Magpie	22	Malheur Refuge, Oregon	10/13/41	250 yds.	C. A. S.	No wind
American Magpie	22	Malheur Refuge, Oregon	11/7/41	175 yds.	C. A. S.	No wind
Western Raven	35	Malheur Refuge, Oregon	7/23/41	100 yds.	C. C. W. C. A. S.	Flying along dike.
Western Raven	39	Red Rock Refuge, Montana	9/16/41		C. C. W. C. S. W.	
Crow	30	Red Rock Refuge, Montana	9/16/41		C. C. W. C. S. W.	Small flock
Sage Thrasher	29	Bear River Bird Refuge, Utah	7/21/41		C. C. W.	Cruising
Sage Thrasher	22	Warner Valley, Oregon	6/30/41	100 yds.	C. C. W.	
Sage Thrasher	25, 28	Malheur Refuge, Oregon	6/29/41	100 yds.	C. C. W. C. A. S.	Flying erratically in front of car
Western Robin	25	Malheur Refuge, Oregon	11/5/41	175 yds.	C. A. S.	No wind

Species	Miles per hour	Place	Date	Distance covered	Observer	Remarks
Mountain Bluebird	18	Malheur Refuge, Oregon	12/6/41	Short distance	C. A. S.	Cross wind
Townsend's Solitaire	20	Malheur Refuge, Oregon	3/9/41	350 yds.	C. A. S.	No wind
Sprague's Pipit	28	Des Lacs Refuge, North Dakota	7/28/41	30 yds.	C. C.	In front of car
California Shrike	22	Malheur Refuge, Oregon	11/30/41		C. A. S.	
Yellow Warbler	22	Mud Lake Refuge, Minnesota	8/23/41		C. C.	Easy flight.
Western Meadowlark	26	Red Rock Refuge, Montana	9/16/41		C. C. C. S. W.	
Yellow-headed Blackbird	29	Upper Souris, North Dakota	7/29/41		C. C. R. G.	Single bird
Yellow-headed Blackbird	25	Bear River Bird Refuge, Utah	7/21/41		C. C. C. S. W.	Single bird
Yellow-headed Blackbird	20	Malheur Refuge, Oregon	6/29/41	75 yds.	C. C. C. S. W. C. A. S.	Cruising
Yellow-headed Blackbird	30, 35	Bear River Bird Refuge, Utah	7/23/41	350 to 700 yds.	C. C. C. S. W.	75 birds in flock. Cruising
Brewer's Blackbird	29	Bear River Bird Refuge, Utah	7/21/41		C. C. C. S. W.	
Brewer's Blackbird	28	Warner Valley, Oregon	6/30/41	100 yds.	C. C. C. S. W.	Cruising
Savannah Sparrow	23	Bear River Bird Refuge, Utah	7/21/41		C. C. C. S. W.	Cruising

Savannah Sparrow	27	Malheur Refuge, Oregon	6/29/41	100 yds.,	C. C. W. C. S. A. S.	In front of car
Savannah Sparrow	21	Malheur Refuge, Oregon	6/28/41	About 100 yds.	C. C. W. C. S. A. S.	Three separate records
Savannah Sparrow	20-21	Currituck Sound, North Carolina	Nov., 1935		C. C.	Cruising
Shufeldt's Junco	26	Malheur Refuge, Oregon	12/3/41	Short distance	C. A. S.	
Modoc Song Sparrow	30	Malheur Refuge, Oregon	10/3/41		C. A. S.	No wind

C. C. —Clarence Cottam
C. S. W. —Cecil S. Williams

C. A. S.—Clarence A. Sooter
R. G. —Richard Griffith

TABLE 2
RUNNING SPEED OF BIRDS

Species	Miles per hour	Place	Date	Distance covered	Observer	Remarks
Sage Hen	2	Near Alturas, California	7/2/41	30 ft.	C. C. C. S. W.	In road, immediately front of car
European Partridge	9	Malheur Refuge, Oregon	6/29/41	30 yds.	C. C. C. S. W. C. A. S.	On dike road, in front of car
Chukar Partridge (<i>Alectoris graeca</i>)	12	Lower Souris, North Dakota	8/2/41	20 yds.	C. C. R. G.	In front of car
Chukar Partridge	18	Missouri	June 1939		H. D.	Field report of Missouri Cooperative Unit
Gambel's Quail	11	Kofa Refuge, Arizona	7/10/41	30 yds.	C. C.	In road in front of car, covey of 14, not quite grown
Gambel's Quail	14	Kofa Refuge, Arizona	7/10/41	20 yds.	C. C.	Female adults, in road in front of car; pressed
Ring-necked Pheasant	8-10	Malheur Refuge, Oregon	6/28/41	200 yds.	C. C. C. S. W. C. A. S.	Two males, in weedy road on dike between ponds; pressed
Ring-necked Pheasant	10	Lake Bowdoin Refuge, Montana	7/25/41	100 yds.	C. C. R. G.	In soft dirt road; pressed but speed obviously impeded
Ring-necked Pheasant	10, 12, 15, 21	Lower Souris, North Dakota	8/2/41	50 to 100 yds.	C. C. R. G.	Single birds; in road in front of car; pressed
Ring-necked Pheasant	12	Bear River Bird Refuge, Utah			E. R. Q.	Immature, 2/3 grown

Ring-necked Pheasant	8-12	Camas Refuge, Idaho	9/16/41	30 yds.	C. C. C. S. W.	Immature, 2/3 grown; in front of car
Killdeer	5	Las Vegas, Nevada	7/4/41	30 ft.	C. C.	On dike between two ponds; in front of car
Long-billed Curlew	8	Bear River Bird Refuge, Utah	6/26/41	30 ft.	C. C. C. S. W.	Immature, bird of the year; in front of car
Long-billed Curlew	8-10	Bear River Bird Refuge, Utah	6/29/41	75 yds.	C. C. C. S. W.	Adult, on dike between two lake units; in front of car, pressed
Avocet	8	Bear River Bird Refuge, Utah	6/29/41	50 ft.	C. C. C. S. W.	Adult, on dike between two lake units; in front of car, pressed
Road-runner	12	20 miles south of Phoenix, Arizona	7/11/41	50 yds.	C. C. J. A. N.	In very deep soft silt in road in front of car; pressed
Road-runner	15	Near St. George, Utah	9/5/26	300 yds.	C. C.	Up 3 per cent grade, dirt road; pressed

C. C. — Clarence Cottam
C. S. W. — Cecil S. Williams
C. A. S. — Clarence A. Sooter
R. G. — Richard Griffith

H. D. — Hugh Denney
E. R. Q. — Erling R. Quortrup
J. A. N. — Johnson A. Neff

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